Laboratory for Energy-Related Health Research, California, Site

FACT SHEET

This fact sheet provides information about the Laboratory for Energy-Related Health Research (LEHR) site. The LEHR Federal Facility portion of this site is managed by the U.S. Department of Energy Office of Legacy Management.

Site Description and History

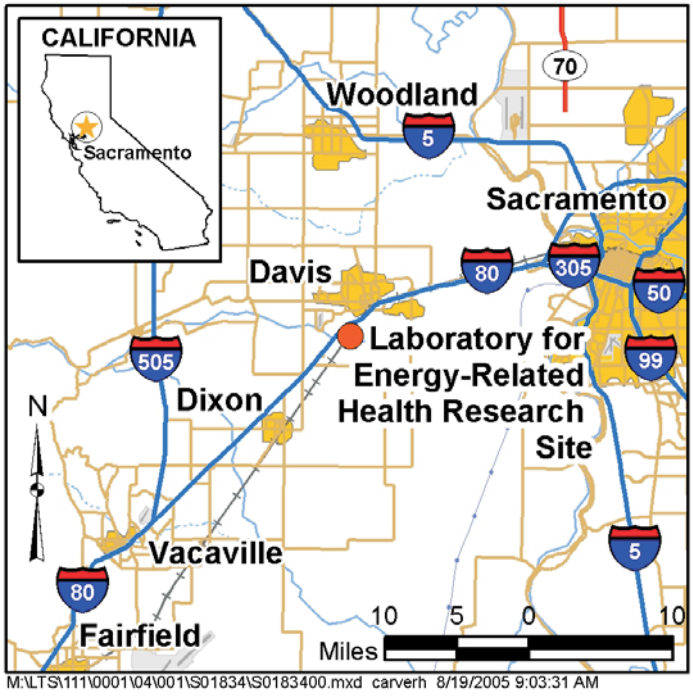
The former Laboratory for Energy-Related Health Research (LEHR) is located at the University of California, Davis (UC Davis), about 1.5 miles south of the main UC Davis campus and is surrounded by UC Davis research facilities and farmland. UC Davis owns the site, which comprises about 15 acres.

Former research activities at LEHR generated a variety of radiological and nonradiological wastes that were disposed of on site. As a result, the U.S. Environmental Protection Agency listed the facility on the National Priorities List (NPL) in 1994. Listing of a site on the NPL requires that environmental restoration and waste management be conducted in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also known as Superfund) and the National Contingency Plan.

The U.S. Department of Energy (DOE) sponsored research at LEHR from the early 1950s until 1988. Initial studies involved the irradiation of beagles and focused on the health effects of chronic exposure to radionuclides, primarily strontium-90 and radium-226. Other research involved use of a cobalt-60 irradiator facility and use of americium-241 and plutonium-241.

Constituents of concern include radionuclides, metals, volatile organic compounds, semivolatile organic compounds, and pesticides. Most site-related contamination was in soil and gravel at the facility, although some contaminants have migrated into the ground water.

DOE-sponsored research at the LEHR site ended in 1988, and a decommissioning program began in 1990. A 1997 Memorandum of Agreement divided responsibility for environmental restoration between DOE and UC Davis. The division of responsibilities was formally defined in a Federal Facilities Agreement in December 1999. The portion of the site for which DOE has responsibility is termed the LEHR Federal Facility and consists of six areas: the Western Dog Pens, Eastern Dog Pens, Southwest Trenches, Radium and Strontium Treatment System, DOE Disposal Box, and Domestic Septic System. DOE is also responsible for monitoring storm water runoff from the LEHR Federal



Location of the LEHR Site

Facility. Site characterization studies do not indicate any current ground water contamination attributable to sources in the LEHR Federal Facility area. UC Davis is responsible for remediation of three landfills, disposal trenches located south and east of one of the landfills, 49 waste holes, a former wastewater treatment plant, ground water contaminated by leachate from the landfills and possibly other UC Davis areas, and storm water runoff in the UC Davis portion of the site.

Remediation at the LEHR Federal Facility is essentially complete. All buildings have been decontaminated and decommissioned, and ownership has been transferred to UC Davis for continued use. Except for the Eastern Dog Pens area, most of the contaminated soil was removed from the source areas and disposed of at licensed off-site disposal facilities. Excavations were backfilled with clean soil. The Eastern Dog Pens area is located over Landfill Disposal Unit 2, which is within the scope of UC Davis' responsibility; DOE's cleanup of this area consisted only of removing the dog pens and an interior chain link fence. Gravel, asphalt, concrete, and subsurface soils have not been disturbed

because of the presence of the underlying landfill. DOE is negotiating an agreement with UC Davis to include the gravels that lined the dog pens and the concrete, asphalt, and subsurface soil in the area as part of the Landfill Disposal Unit 2 final cover.

Remedial Action

As a CERCLA site, the LEHR Federal Facility was remediated to risk-based standards that were derived from site-specific exposure assumptions. Risk-based remediation goals were established for each contaminant of concern on the basis of probable future use of the site as a research or industrial facility. Site characterization data were used to identify soils at each DOE area that contained constituents in concentrations statistically above background. Those constituents were considered to be contaminants of concern for that area. Contaminant concentrations were compared to risk-based screening levels to guide the soil removal process. The remediation goals represented reductions in risk from exposure to contaminants, which were classified as either carcinogens or noncarcinogens. For carcinogens, the goal was to achieve a probability of an excess cancer risk (compared to the norm for the area) in the CERCLA risk range of one per ten thousand to one per million population. Noncarcinogens were evaluated according to a set of exposure assumptions that resulted in a calculated hazard quotient for each contaminant. The remediation goal for noncarcinogens was to achieve hazard quotients of less than 1. The risk evaluation indicated that the goal for carcinogens was achieved in all DOE areas. The goals for noncarcinogens were generally achieved as well, with the exception of mercury in a few instances. However, the exposure assumptions are generally conservative by nature, and it is likely that the calculated risks are overestimated.

Ground water modeling results indicate that residual subsurface contamination at some DOE source areas could eventually affect ground water. In most cases, the effect of residual contamination is expected to be minimal and will require no further remedial activities. A sitewide risk assessment and a sitewide Feasibility Study are currently in preparation and will be the basis for a Record of Decision (ROD) for the LEHR Federal Facility. The ROD serves a legal function by documenting that the remedy selection process was conducted in compliance with the requirements of CERCLA and the National Contingency Plan. The ROD is also a public document that provides a concise history and characteristics of the site, any risks posed by conditions at the site, a summary of the cleanup alternatives, and the rationale behind the selected remedy.

Institutional Controls

Because the site is being cleaned up to industrial land-use standards, certain land-use restrictions and controls may be imposed for some areas of the LEHR Facility.

Legacy Management Activities

DOE's Office of Legacy Management has two categories of responsibility at the LEHR Federal Facility: pre-ROD and post-ROD. Pre-ROD activities consist of continued storm water runoff monitoring, preparation of an annual Site Environmental Report, compliance with National Emission Standards for Hazardous Air Pollutants reporting requirements, and recordkeeping. CERCLA requirements include completion of the Feasibility Study and associated activities leading to the ROD. After issuing the ROD, DOE will be responsible for completing any required remedial action and for preparing remaining closeout documentation to support requirements for partial delisting from the NPL.

After the ROD is approved and remediation is complete, it is anticipated that a single CERCLA 5-year review will be required and that all monitoring responsibilities will be transferred to UC Davis. The process for partial delisting of the LEHR Federal Facility would also begin once remediation is determined complete. DOE's on-site responsibilities would then be completed, and the only long-term responsibilities would be maintenance of historical and current site records and responding to stakeholder inquiries.

Contacts

Documents related to the LEHR Federal Facility are available on the DOE Legacy Management website at http://www.lm.doe.gov/land/sites/ca/lehr/lehr.htm.

For more information about DOE Legacy Management activities at the LEHR Federal Facility, contact

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